

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 May 2004 (27.05.2004)

PCT

(10) International Publication Number
WO 2004/043996 A3

(51) International Patent Classification⁷: **C07K 14/16**,
C12N 15/11, C12Q 1/68, A61K 31/70, A61P 31/18

(21) International Application Number:
PCT/GB2003/004897

(22) International Filing Date:
12 November 2003 (12.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0226374.7 12 November 2002 (12.11.2002) GB

(71) Applicant (*for all designated States except US*): **ISIS IN-
NOVATION LTD** [GB/GB]; Ewert House, Ewert Place,
Summertown, Oxfordshire OX2 7SG (GB).

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): **JAMES, William**
[GB/GB]; Sir William Dunn School of Pathology, Univer-
sity of Oxford, South Parks Road OX1 3RE (GB).

(74) Agents: **CHAPMAN, Paul, William et al.**; Kilburn &
Strode, 20 Red Lion Street, London WC1R 4PJ (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR,
CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,
SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:
5 August 2004

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: **LIGANDS**

(57) Abstract: Aptamers that bind to viral envelope proteins, in particular those that bind to the envelope glycoprotein gp120 of HIV are disclosed. The use of these aptamers for screening potential therapeutic targets and in the treatment of HIV infections is also described.

WO 2004/043996 A3

INTERNATIONAL SEARCH REPORT

International Application No
PC 1/GB 03/04897

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K14/16 C12N15/11 C12Q1/68 A61K31/70 A61P31/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C12Q A61K A61P C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 2004/026260 A (ARCHEMIX CORP. (US) ; WILSON CHARLES; EPSTEIN DAVID; DIENER JOHN L.) 1 April 2004 (2004-04-01) the whole document	1-4,6-12
E	WO 03/102131 A (SIRNA THERAPEUTICS INC. (US); MACEJAK DENNI; BLATT L.; MCSWIGGEN JAMES) 11 December 2003 (2003-12-11) the whole document	1-4,6-12
E	WO 2004/007748 A (SIRNA THERAPEUTICS, INC. (US); VARGESE C.; SHAFFER C.; BOWMAN K.) 22 January 2004 (2004-01-22) page 38, lines 6-20	1-4, 10-12
	----- -/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

15 June 2004

Date of mailing of the international search report

25/06/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Macchia, G

INTERNATIONAL SEARCH REPORT

Int nal Application No
PCT/GB 03/04897

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>SAYER N. ET AL.: "Structural characterization of a 2'F-RNA aptamer that binds a HIV-1 SU glycoprotein, gp120"</p> <p>BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS,</p> <p>vol. 293, no. 3, 10 May 2002 (2002-05-10), pages 924-931, XP002283886</p> <p>the whole document</p> <p>-----</p>	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 03/04897

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claim 12 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

Information on patent family members

١٢١/ ٤٨ ٠٣/٠٤٨٩٧

WO	2004026260	A	01-04-2004	WO	2004026260	A2	01-04-2004
				WO	2004031360	A2	15-04-2004
WO	03102131	A	11-12-2003	US	2003124513	A1	03-07-2003
				US	2003175950	A1	18-09-2003
				WO	03070193	A2	28-08-2003
				WO	03102131	A2	11-12-2003
				US	2004006035	A1	08-01-2004
				CA	2455447	A1	12-09-2003
				CA	2455506	A1	28-08-2003
				CA	2456444	A1	28-08-2003
				EP	1423404	A2	02-06-2004
				EP	1423406	A2	02-06-2004
				WO	03072590	A1	04-09-2003
				WO	03072704	A2	04-09-2003
				WO	03072705	A2	04-09-2003
				WO	03070983	A1	28-08-2003
				WO	03070742	A1	28-08-2003
				WO	03070881	A2	28-08-2003
				WO	03070884	A2	28-08-2003
				WO	03070885	A2	28-08-2003
				WO	03070886	A2	28-08-2003
				WO	03070743	A1	28-08-2003
				WO	03070887	A2	28-08-2003
				WO	03070888	A2	28-08-2003
				WO	03070966	A2	28-08-2003
				WO	03070744	A1	28-08-2003
				WO	03070895	A2	28-08-2003
				WO	03070896	A2	28-08-2003
				WO	03070897	A2	28-08-2003
				WO	03070968	A2	28-08-2003
				WO	03070969	A2	28-08-2003
				WO	03070903	A2	28-08-2003
				WO	03070970	A2	28-08-2003
				WO	03070910	A2	28-08-2003
				WO	03074654	A2	12-09-2003
				WO	03070750	A2	28-08-2003
				WO	03070911	A2	28-08-2003
				WO	03070912	A2	28-08-2003
				WO	03070914	A2	28-08-2003
				WO	03070972	A2	28-08-2003
				WO	03070917	A2	28-08-2003
				WO	03070918	A2	28-08-2003
				WO	03070197	A2	28-08-2003
				WO	03106476	A1	24-12-2003
				US	2003190635	A1	09-10-2003
				US	2003206887	A1	06-11-2003
WO	2004007748	A	22-01-2004	US	2004048251	A1	11-03-2004
				WO	2004007748	A2	22-01-2004